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Impact of Canadian tobacco packaging policy on quitline reach and reach equity

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ABSTRACT

Objective. To examine the impact of the new Canadian tobacco package warning labels with a quitline toll-free phone number for seven provincial quitlines, focusing on treatment reach and reach equity in selected vulnerable groups.

Methods. A quasi-experimental design assessed changes in new incoming caller characteristics, treatment reach for selected vulnerable sub-populations and the extent to which this reach is equitable, before and after the introduction of the labels in June, 2012. Administrative call data on smokers were collected at intake. Pre- and post-label treatment reach and reach equity differences were analysed by comparing the natural logarithms of the reach and reach equity statistics.

Results. During the six months following the introduction of the new warning labels, 86.4% of incoming new callers indicated seeing the quitline number on the labels. Treatment reach for the six-month period significantly improved compared to the same six-month period the year before from .042% to .114% ($p < .0001$) and reach equity significantly improved for young males ($p < .0001$) and those with high school education or less ($p = .004$).

Conclusions. The introduction of the new tobacco warning labels with a quitline toll-free number in Canada was associated with an increase in treatment reach. The toll-free number on tobacco warning labels aided in reducing tobacco related inequalities, such as improved reach equity for young males and those with high school or less education.

Introduction

Tobacco is a leading cause of preventable illness and death in Canada and throughout the world (World Health Organization, 2009, 2012). In Canada, it is estimated that approximately 100 Canadians die each day from a smoking-related illness (Health Canada, 2011). The economic impact of tobacco related illness in Canada is also significant, with the annual burden of tobacco smoking estimated to be $21.3 billion (Krueger et al., 2014). In Ontario—Canada's largest province—smoking is the biggest factor for hospital bed-utilisation accounting for 22% of men's and 12% of women's hospital bed-days and almost $1 billion in hospital costs for 2011 (Manuel, et al., 2014). Approximately 15% of Canadians aged 15+ are smokers (Reid, et al., 2015); however, there are large disparities in tobacco use, with some groups experiencing a disproportionate share of the tobacco health burden (David, et al., 2010; Blas and Sivasankara Kurup, 2010). These groups are vulnerable sub-populations who are more likely to be exposed to conditions that place them at a greater risk of exposures resulting in poor health (Frohlich, et al., 2006; Frohlich and Potvin, 2008). Populations in Canada with high smoking prevalence include young males 18 to 29 years of age (27%), those living in rural areas (19%), and those with high school or less education (21%) as a proxy for low socio-economic status (Schwartz, et al., July, 2010; Statistics Canada, 2012; Health Canada, 2015). Although smoking prevalence has declined over time in Canada, the disparity in smoking rates between high and low socio-economic status and for other sub-populations has remained (Reid, et al., 2014). More needs to be done to reduce these disparities.

Canada introduced pictorial health warning labels on cigarette packs in the year 2000. A new set of pictorial health warning labels (HWLs) were introduced by Health Canada in 2012 (see Fig. 1) and included,

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* additional examples can be found at http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/legislation/label-etiquette/cigarette-eng.php

Fig. 1. Example* Cigarette Package Health Warning Label — March 2012 to present. *Additional examples can be found at http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/legislation/label-etiquette/cigarette-eng.php.

for the first time, a quitline toll-free number (Government of Canada, 2014). Manufacturers were prohibited from producing cigarette packages and retailers were prohibited from selling cigarettes without the new HWLs as of March 21 and June 18, 2012 respectively. Including a quitline telephone number in tobacco warnings on cigarette packages has been found to increase call volume (Bot, et al., 2007; Miller, et al., 2009) and the associated number of new callers registering with the service (Li and Grigg, 2009; Willemsen, et al., 2002), resulting in an increased reach for quitlines. Following the introduction of labels with quitline numbers in the Netherlands, the callers were from a broader group of smokers and there was an increase in callers from lower socioeconomic groups (Willemsen, et al., 2002). However, little is known about the impact of the introduction of these labels on reach equity, that is whether the percentage of quitline callers from vulnerable groups is representative of the smoking population (Campbell, et al., 2014).

Quitlines are population-based cessation support interventions that have been shown to be effective in a variety of contexts (Stead, et al., 2013; Lichtenstein, et al., 1996), however the evidence regarding their impact on tobacco-related health disparities is scarce, and what is published reports mixed findings (Hill, et al., 2013; Brown, et al., 2014; Varghese, et al., 2014; North American Quitline Consortium, 2011). Canadian provincial quitlines can be easily accessed free of charge, have no eligibility restrictions, and provide evidence-based information, advice and motivational counselling. The impact of a population-based intervention is measured as the product of the intervention's reach and its effectiveness (Glasgow, et al., 2006). Canadian quitlines, relative to other jurisdictions, have had lower reach and consequently lower relative impact due to limited funding for mass media promotions and nicotine replacement therapy (NRT) services, both of which have been shown to increase reach (Saul, et al., 2014). During the 2010 fiscal year, Canadian quitlines reached and provided treatment to 0.30% of the adult smoking population overall and the treatment reach for individual provincial quitlines ranged from 0.17% to 1.79% (North American Quitline Consortium, 2012). Therefore, it is important to monitor the impact of population-based strategies such as the new tobacco package HWLs with a quitline toll-free number on overall reach and reach into vulnerable population groups (McLaren, et al., 2010) to establish health equity.

This paper examines the impact of the new health warning labels with the quitline toll-free number for seven Canadian provincial quitlines, focusing on the changes in the characteristics of quitline callers, treatment reach into selected vulnerable groups in the population, and the impact on the reach equity for these groups.

Methods

Study design

This study is a quasi-experimental pre-test post-test design based on the natural experiment created by the introduction of new HWLs with a toll-free quitline number (Victora, et al., 2004; Petticrew, et al., 2005). Comparisons are made of new incoming caller characteristics, the proportion of selected vulnerable smoking sub-populations who receive treatment from the quitline (treatment reach) and the extent to which this reach is equitable, before and after the introduction of the labels. The post-label period is the six months from July 1, 2012 to December 31, 2012, after the new tobacco regulations came into full force and retailers could no longer sell cigarettes or little cigars without the new labels (Government of Canada, 2014), while the pre-label period was for the comparable months in the preceding year (July 1, 2011 to December 31, 2011). These time periods were chosen to remove months where other quitline promotions such as Quit and Win contests had been run in the pre-label period.

Participants

The study focuses on quitline new callers who were age 18 and over, smoked daily or occasionally at intake or had recently quit (within the past 30 days), were seeking smoking cessation help, and who had no contact with the quitline in the past 12 months (North American Quitline Consortium, 2009).

Three vulnerable groups were selected for the analysis on the basis of the quitline and population data available. The first is young males whose self-reported age is 18 to 29 years. The second group is smokers with high school or less education, which is used as a measure for low socioeconomic status. The third group is smokers living in rural areas.

Data sources

Data on quitline callers were obtained from participating quitline providers' intake and service data for seven provinces in Canada (Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, and Saskatchewan). Quitline providers from Quebec, Alberta and British Columbia declined participation.

To calculate reach and reach equity, population data for these provinces were obtained from the Canadian Tobacco Use Monitoring Survey (CTUMS) public use data files for the years of 2011 and 2012 (Statistics Canada, 2012, 2013).